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The Veterinary Nurse

A prospective cross-sectional survey of UK-based dog owners to explore canine handling intolerances and owner willingness to disclose these to veterinary professionals

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Abstract:	<p>Background</p> <p>Canine handling intolerances (CHI) can be problematic for veterinary professionals (VPs), particularly when not disclosed by owners.</p> <p>Aims</p> <p>This study explored apparent prevalence of CHI during veterinary practice visits, owner willingness to disclose intolerances to VPs and their beliefs as to responsibilities for disclosure and risks of non-disclosure.</p> <p>Methods</p> <p>Using a prospective cross-sectional study design, an online, social media-based survey was distributed, which generated 471 usable responses over 4 months.</p> <p>Findings</p> <p>The majority (60.7%) of dogs had CHI. Most owners (78.1%) would definitely alert VPs to CHI, 90.5% believed it was primarily the owners' responsibility to disclose, with non-disclosure perceived to make procedures high risk for VPs. Veterinary practices could help prevent CHI, with puppy classes and information on canine body language wanted.</p> <p>Conclusion</p>

	<p>With CHI common, owners and VPs have roles to play in prevention, disclosure and management to minimise risk to VPs and ensure all parties' welfare.</p> <p>Acknowledgements/conflict of interest statement</p> <p>This study was undertaken as part of the primary (EC) author's completion of the MSc Clinical Animal Behaviour (University of Edinburgh) and formed part of her dissertation studies. The authors declare that they have no competing interests and the study was self-funded. The authors gratefully acknowledge statistical advice provided by Margo Chase-Topping as part of EC's dissertation studies.</p>
Suggested Reviewers:	
Response to Reviewers:	<p>Summary of revisions - all authors agreed on these revisions:</p> <p>Reply to specific points raised:</p> <p>1.In Key points, should the term, 'canine handling intolerances', be included here? DONE</p> <p>2.Some overall proof-reading to identify sentences that are too lengthy and therefore tend to be less clear and fluent when reading. Also, some sentences just lack clarity of expression. Examples being –</p> <p>a.Abstract - last sentence of Findings; CHANGED</p> <p>b.Section 4, paragraph 2, page 2 - First sentence is very long; (CHANGED) second last sentence is anecdotal evidence (WE ACKNOWLEDGE AND MAKE CLEAR IN THE TEXT THAT IT IS ANECDOTAL – BUT THAT IS WHERE THE RESEARCH QUESTION CAME FROM SO IS WORTH ACKNOWLEDGING -we have edited it from “are sometimes” to “seem to be”), and last sentence could be clearer.;</p> <p>c.Section 5.1 - Point 1 - could this be changed to 'Dogs of survey respondents', or similar? We have changed to “adult dog owners (and their dogs)” as technically both are being sampled, dependent upon the question being asked.</p> <p>d.Section 6.1 last sentence in paragraph under figure. We have not edited this sentence as it is unclear what the referee is referring to here. We think it is the use of front and back paws. This terminology was used as more accessible to the respondents.</p> <p>e.Page 7, last paragraph, last sentence. done</p> <p>f.7.3 Conclusion - Could the first sentence be reviewed in using 'the term 'risk 'twice in close proximity? Would once suffice? done</p> <p>g.Typos - Section 4, paragraph 1, done</p> <p>h.page 2 - 'However, it also seems ... is unachievable'; done</p> <p>i.Paragraph 2, page 3. - "...and beliefs as to the whose responsibility'..'. done</p> <p>j.Section 7.2, page 13, use of 'aide 'versus 'aid'. Done</p> <p>k.Grammar - Section 4, page 3 - '...and its association to (or with) owning a dog...'. done</p> <p>l.In Section 5.1, could the concept of a 'convenience' sample be explained a little for the general readership? done</p> <p>m.In Section 5.2, could some broad description of the types of Facebook groups be provided to enhance understanding of the groups surveyed? done</p> <p>n.Could title of Figure 3 be simplified e.g. 'Owners'acceptance..'.or similar? done</p> <p>o.Section 6.5, page 11, last sentence - 'anyone 'instead of 'no one 'or reframe the sentence. done</p> <p>p.Section 7.1 - Term 'vets' is jargon. Could this be replaced. done</p> <p>q.Section 7.1 - Term 'robust'. Is there a better word or reframing of sentence here? done</p> <p>r.Section 7.1, paragraph 2, page 12 - 'certain' has been used twice in close proximity in one sentence. Can one of these be substituted. done</p> <p>s.Two consecutive sentences starting with 'It'. done</p> <p>t.Similarly, page 13, paragraph 2 - 'help 'and 'helping in one sentence. done</p> <p>u.References - Check Wallis. - done</p> <p>v.In Section 5.3f - Could this be simplified to - owner information/sources of support? - done</p> <p>w.In Section 5.4 - Third sentence beginning 'Composite summative scale data - could this be more fluent/clarified? - done</p> <p>x.Section 5.5 Ethical considerations - is the year approved required in the reference? – done</p>

	<p>y. Section 6.2 - Would it be better to use the terms hind and forepaws (rather than the lay terms - front and back)? –We have used the language used in the survey. While we appreciate that this is not the way that veterinary professionals would use language to describe the various body parts, the language in the survey was designed to be accessible to lay people. We have added a sentence to this effect in the methodology (section 5.2, part c: “and the language used to describe body parts designed to be accessible to the layperson.”).</p> <p>z. Similarly in Figure 1 - 'Anatomical area of dog's body'? Please see the comment above (y).</p> <p>aa. Section 6.2, page 7 There does not seem to be a comment attached to aa and we are not sure what the problem is that the reviewer is referring to. We are happy to look at the issue if the reviewer could take the time to flag this again?</p>
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A prospective cross-sectional survey of UK-based dog owners to explore canine handling intolerances and owner willingness to disclose these to veterinary professionals

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Abstract:

Background:

Canine handling intolerances (CHI) can be problematic for veterinary professionals (VPs), particularly when not disclosed by owners.

Aims:

This study explored apparent prevalence of CHI during veterinary practice visits, owner willingness to disclose intolerances to VPs and their beliefs as to responsibilities for disclosure and risks of non-disclosure.

Methods:

Using a prospective cross-sectional study design, an online, social media-based survey was distributed, which generated 471 usable responses over 4 months.

Findings:

The majority (60.7%) of dogs had CHI. Most owners (78.1%) would definitely alert VPs to CHI, 90.5% believed it was primarily the owners' responsibility to disclose, with non-disclosure perceived to make procedures high risk for VPs. Veterinary practices could help prevent CHI, with puppy classes and information on canine body language wanted.

Conclusion:

With CHI common, owners and VPs have roles to play in prevention, disclosure and management to minimise risk to VPs and ensure all parties' welfare.

Acknowledgements/conflict of interest statement:

This study was undertaken as part of the primary (EC) author's completion of the MSc Clinical Animal Behaviour (University of Edinburgh) and formed part of her dissertation studies. The authors declare that they have no competing interests and the study was self-funded. The authors gratefully acknowledge statistical advice provided by Margo Chase-Topping as part of EC's dissertation studies.

Table one: Respondent and respondent dog's data.

Respondent demographics		number	%
Age (years)	18 - 30	78	16.6
	31 - 45	145	30.8
	46 - 60	191	40.6
	60+	57	12.1
Gender	Male	35	7.4
	Female	436	92.6
Education	Primary/secondary only	97	20.6
	Further/higher education	364	77.3
	Other	10	2.1
Dog ownership experience	First time owner	110	23.4
	Experienced	360	76.4
	Breeder	1	0.2
Number of dogs currently owned	1	299	63.5
	2	119	25.3
	3+	53	11.3
Currently registered with a vet practice	Yes	363	77.1
	No	9	1.9
Respondent's dog demographics			
Sex	Male	55	11.7
	Male neutered	208	44.2
	Female	35	7.4
	Female neutered	173	36.7
Age (years)	Less than one year	17	3.6
	1 - 4 years	170	36.1
	4 - 8 years	162	34.4
	Greater than 8 years	122	25.9
KC breed classification	Working	21	4.5
	Utility	20	4.2
	Terrier	41	8.7
	Pastoral	42	8.9
	Toy	16	3.4
	Gundog	150	31.8
	Hound	48	10.2
	Other/cross breed/unknown	133	28.2
Status within household	Family pet	460	97.7
	Other	11	2.3

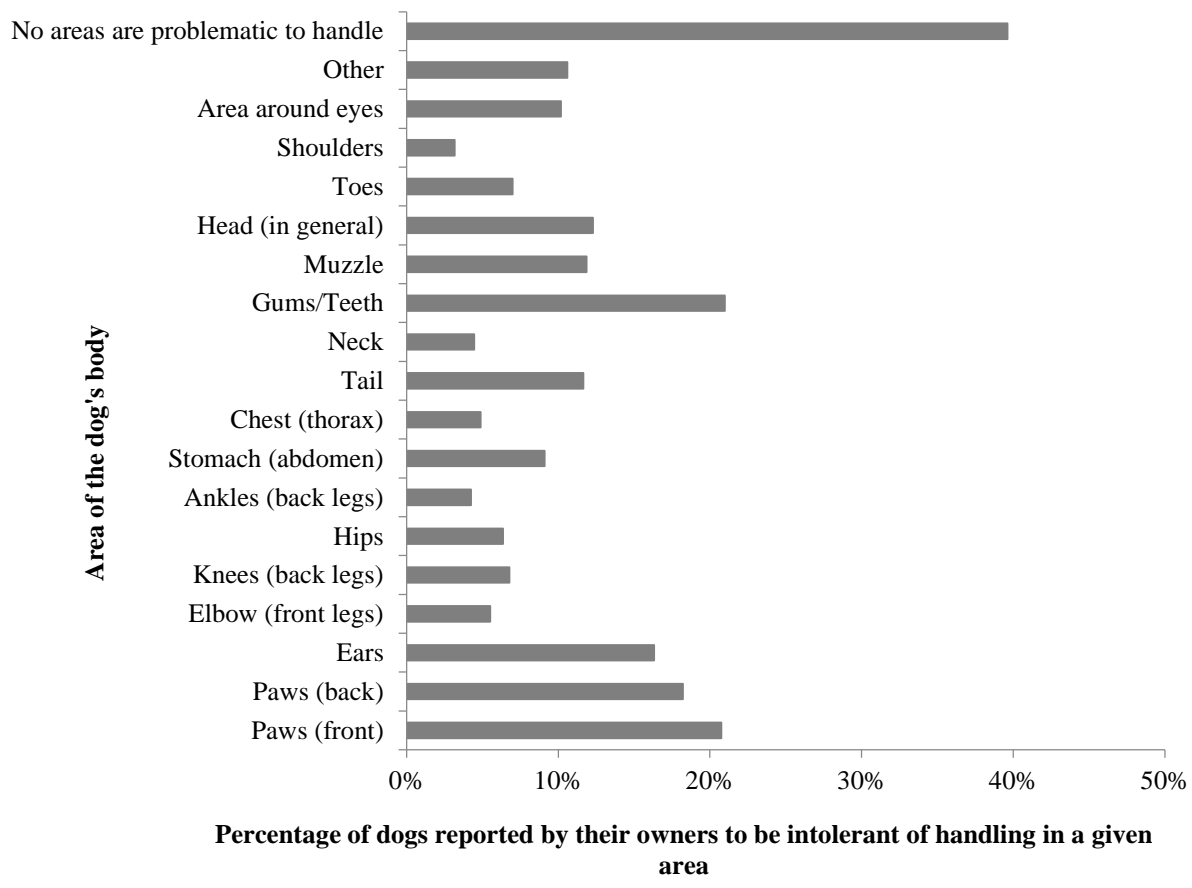


Figure 1: Areas of the body that owners indicated that they believed that their dog was intolerant of being handled.

The percentage does not add up to 100% as owners could select more than one option.

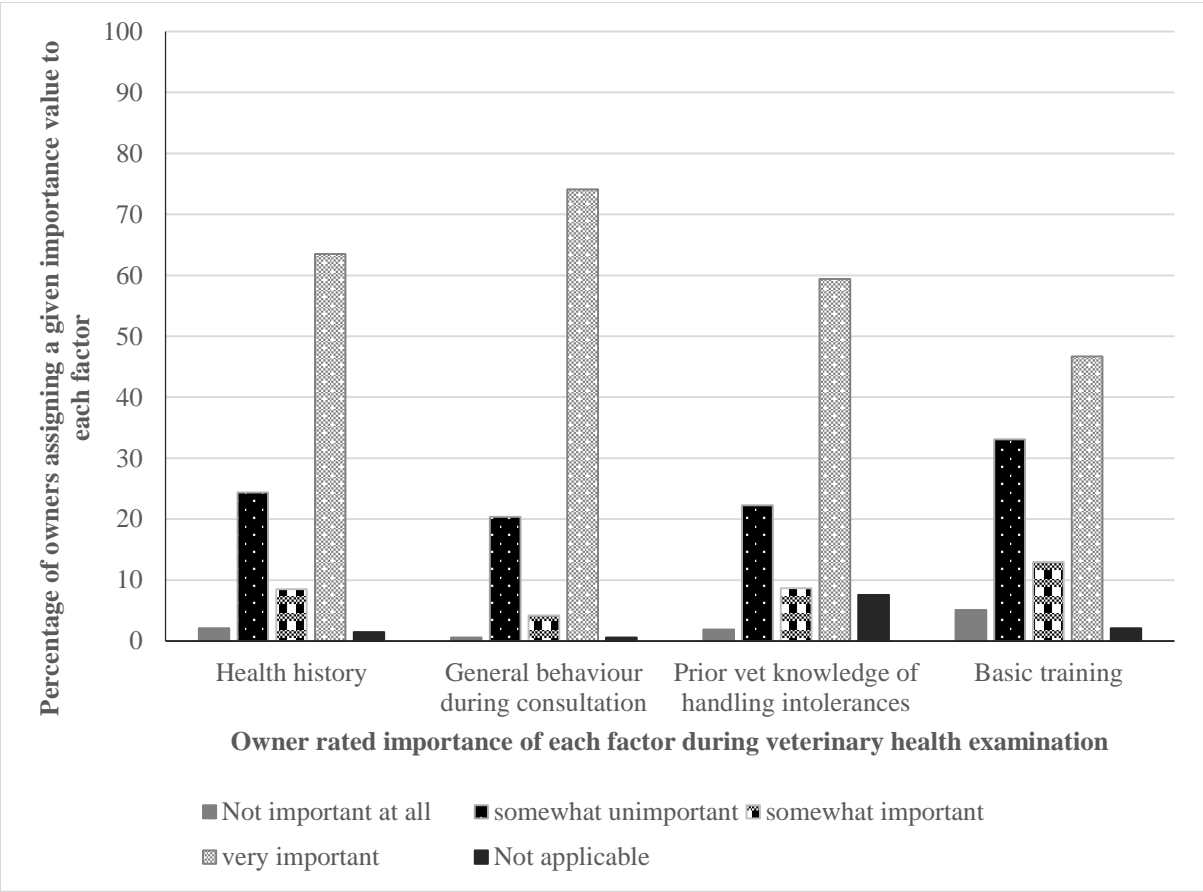


Figure two: Owner-rated importance of factors that are important to consider when taking their dog to a veterinary clinic for a veterinary health examination. Nb. No data was collected on why some owners thought that each of these factors were not applicable so it is possible that the not important at all category underestimates the number of owners that did not place importance on this factor.

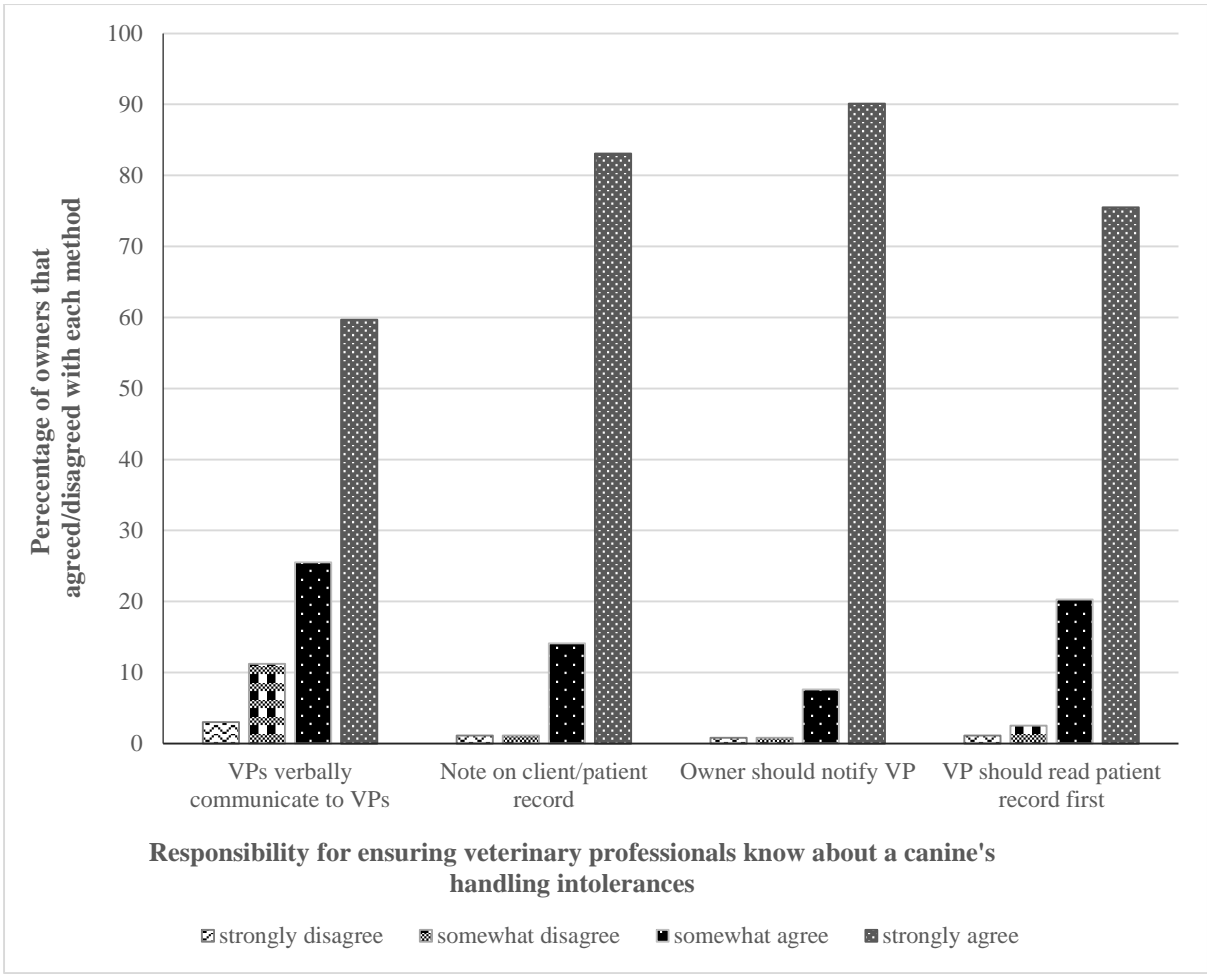


Figure three: The acceptability of four common approaches to ensuring that a veterinary professional (VP) knows about a canine patient’s handling intolerances before clinically examining the dog.

A prospective cross-sectional survey of UK-based dog owners to explore canine handling intolerances and owner willingness to disclose these to veterinary professionals

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Conclusion:

With CHI common, owners and VPs have roles to play in prevention, disclosure and management to minimise risk to VPs and ensure all parties' welfare.

2. Key words:

Canine; veterinary; handling; aggression; bite; communication

3. Key points:

- Canine **handling** intolerances are common among dogs attending veterinary practice consultations, with handling of the mouth/gums, and paws the most problematic areas.

- Most owners would definitely disclose their dog's handling intolerances to the veterinary professional and felt information about their dog's behaviour was of similar importance to having a clinical history.
- Owners perceived that non-disclosure of canine handling intolerances made common procedures undertaken during a consultation high risk for the veterinary professional.
- Owners believed that the owner of the dog was primarily responsible for ensuring that the veterinary professional was aware of handling intolerances, but notes on file, the veterinary professional asking the owner and notifying other professionals were all acceptable approaches.
- Owners believed veterinary practices could do more to help prevent canine handling intolerances with services like puppy classes and client information on canine body language valued.

4. Introduction:

Even when physically healthy and pain free, dogs may have aversions to being handled in particular ways (Oxley *et al.*, 2018) and to certain individuals (Csoltova *et al.*, 2017), (word 'and' removed) this aversion may manifest itself in fearful or aggressive behaviour (Oxley *et al.*, 2018). Canine handling intolerances can make handling dogs within a veterinary practice environment more problematic and pose a risk for veterinary staff and owner health and safety (Dhillon *et al.*, 2019). In particular, being bitten can cause life-changing physical and psychological injury (Dhillon *et al.*, 2019). However, canines that are problematic to handle may also reduce job satisfaction in veterinary professionals (Roshier and McBride, 2012), or be a source of embarrassment to owners (Roshier and McBride, 2013), with the canine stress associated with it resulting in reduced owner willingness to visit the veterinary practice (Lloyd, 2017). Combined, these factors may result in lower levels of veterinary care being provided to handling intolerant dogs. Clearly, prevention of handling intolerances is an admirable goal (Ryan, 2019). However, it also seems likely that complete eradication of handling intolerances among the pet dog population is unachievable. Therefore, the veterinary professional will continue to meet dogs that have handling intolerances and be exposed to the risk that is involved in this when meeting the requirement to put patient welfare at the centre of their veterinary endeavour.

One way to potentially reduce the risk posed by canine handling intolerances, (sentence removed) is to improve owner communication of handling intolerances. This may also facilitate early measures to work with this handling limitation to still ensure good quality veterinary provision for canine patients visiting the clinic.

The owner is a potential source of valuable information (Roshier and McBride, 2013), both about their dog's more general behaviour and handling intolerances, but also in relation to the behaviour of their dog towards veterinary professionals at previous veterinary consultations. However, in several of the authors' veterinary

experience (XXX, XXX, as experienced veterinary nurses) owners **seem to be** reluctant to share this information, waiting until after the dog has shown behavioural signs of aversion before confirming this dislike of handling. There is currently no research that seeks to understand canine handling intolerances at the veterinary practice and owner attitudes / beliefs in relation to communicating **canine handling intolerances**.

The purpose of this study was to better understand canine intolerances in the UK dogs visiting the veterinary practice. It aimed to identify apparent prevalence of canine handling intolerances, owner willingness to communicate these to veterinary professionals and beliefs as to **(word 'the' removed)** whose responsibility it was for identifying canine handling intolerances that might put veterinary professionals at risk. Risk (to the veterinary professional) perception was also evaluated, and its association **with** owning a dog with handling intolerances explored. It was hypothesised that owners with dogs with handling intolerances would perceive a higher risk than those that didn't. Finally, the survey aimed to identify potential sources of advice that owners would be likely to consult if they owned a dog with handling intolerances and the potential role of the veterinary practice in canine intolerance to handling prevention.

5. Methods:

5.1. Participants and sampling

The study utilised a prospective cross-sectional survey design that convenience sampled adult dog owners **and their dogs residing** in the United Kingdom. **By using convenience sampling, dog owners were approached through social media rather than randomly selected from the whole cohort of dog owners in the UK.** The inclusion criteria for the survey included the following: **1. The respondent must be a dog owner and aged 18 years or older. 2. The dog that the owner answered the survey about must be at least six months old, and 3. The owner must have owned this dog for at least four months.** There were no breed or sex restrictions. **(statement removed).**

5.2. Survey distribution

The survey was hosted by Online Surveys (JISC, Bristol, UK) and was distributed via social media (Facebook™) during the period December 2018 – March 2019. Social media **Facebook™** groups aimed at dog owners **(e.g. Dog Owners Group UK) or where dog owners might be incidentally members (e.g. Edinburgh Anything For Sale Free Swap Household Phones Car Services; Walking in the national parks in the UK)** were approached for permission to post the survey via their group wall, with the survey posted to nineteen groups. The survey was also distributed by several Facebook pages managed by veterinary focused

businesses (e.g. Independent Vet Care, People's Dispensary for Sick Animals) and animal welfare organisations/charities (e.g. Springer Rescue Scotland) so the total reach and response rate of the survey could not be determined.

5.3. Survey design

The survey was divided into:

- a. A page which explained the purpose of the study and elicited informed consent from respondents.
- b. Demographic information about the owner (age/gender/education/ownership experience/veterinary practice registration/number of dogs owned) and the dog the survey was answered about (breed/sex/reason for ownership).
- c. Handling intolerances and owner communication of these. These questions focused on presence, location and impact of handling intolerances, and factors (health history/training/behaviour/intolerances) owner considered important when attending a veterinary consultation. An illustrated figure of a canine (courtesy of www.howtodrawanimals.com) was used to facilitate the owner identifying areas where their dog was intolerant of handling , and the language used to describe body parts designed to be accessible to the layperson.
- d. Owner belief as to who was responsible for identifying dogs with handling intolerances, and the role of the veterinary practice.
- e. Perception of risk during veterinary consultations to the veterinary professional when handling a canine during common procedures. These included: clinical examination/temperature/eyes and ears/vaccination (injection)/vaccination (intra-nasal); nail-clip/blood sampling/anal gland emptying/dental check/post-operative check (site not specified).
- f. Owner information/sources of support. Owners were asked who/what (vet/vet nurse/dog trainer/behaviourist/breeder/friend/book/no one) they would consult if their dog had handling intolerances.

A mixture of dichotomous, multiple choice and Likert-type questions (6-point scales) were used to address the aims of the survey. Perception of risk during each common consultation room procedure was converted to a composite scale that measured perception of risk generally during a consultation room.

5.4. Statistical analysis

All statistical analyses were performed using SPSS® version 26 ((IBM Corp., Armonk, New York), with graphics produced using Microsoft® Excel® (Microsoft 365®, Microsoft®, Washington, USA). A composite summative scale for the risk to the veterinary professional of not being warned of canine handling intolerances/preferences prior to undertaking common consultation procedures was generated by undertaking a Cronbach alpha analysis, with stepwise removal of items ($n = 1$) until the Cronbach alpha value was maximised at 0.967. **Scale data were analysed using a summative score overall all scale items using** the Median Test to compare medians as transformations did not normalise the distribution of residuals and reported using medians and interquartile range. Chi-square analyses were undertaken to examine associations between handling intolerances and veterinary practice avoidance, and to assess responsibilities for ensuring veterinary professionals were aware of canine handling intolerances. For responsibilities data, due to low frequencies in some categories, ordinal categories were merged to produce binary outcomes (completely or strongly agree versus all other options). For sources of assistance, the 6-point likert type scale was reduced (by merging points 2 & 3 and 4 & 5) to a 4-point scale (definitely/somewhat likely/somewhat unlikely/definitely not) to facilitate data handling.

5.5. Ethical considerations

The **XXX** Human Ethical Review Committee approved this survey for dissemination (HERC: 292 – 18). **The survey was approved in December 2018.**

6. Results:

6.1. Respondent demographics

Of 501 completed surveys, 471 usable responses were obtained. Twenty-eight were excluded because the owner completed the survey in a way that made it difficult to be certain which dog, or whether one dog, was the focal dog during completion. Two further responses were excluded because the owner indicated that the dog was deceased and therefore not relevant to the current study. **Table one shows the demographic information of the dog owner and detailed information of the corresponding dog.**

Table one: Respondent and respondent dog's data.

Respondent demographics		number	%
Age (years)	18 - 30	78	16.6
	31 - 45	145	30.8
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	60+	57	12.1
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	Other/crossbreed/unknown	133	28.2
Status within household	Family pet	460	97.7
	Other	11	2.3

6.2. Canine handling intolerances and owner willingness to disclose these

Eighty-nine (18.9%) respondents reported that their dog's behaviour during handling at the veterinary clinic had been a reason to avoid or delay going to a veterinary practice. This behaviour was significantly ($\chi^2_1 = 48.707$, $p < 0.001$) associated with the owner reporting that their dog (when physically healthy) had handling intolerances to at least one body part, with 286 owners (60.7%) reporting handling intolerances present. Where handling intolerances were reported, the most commonly selected body parts were gums/teeth, followed by front and back paws (see figure 1).

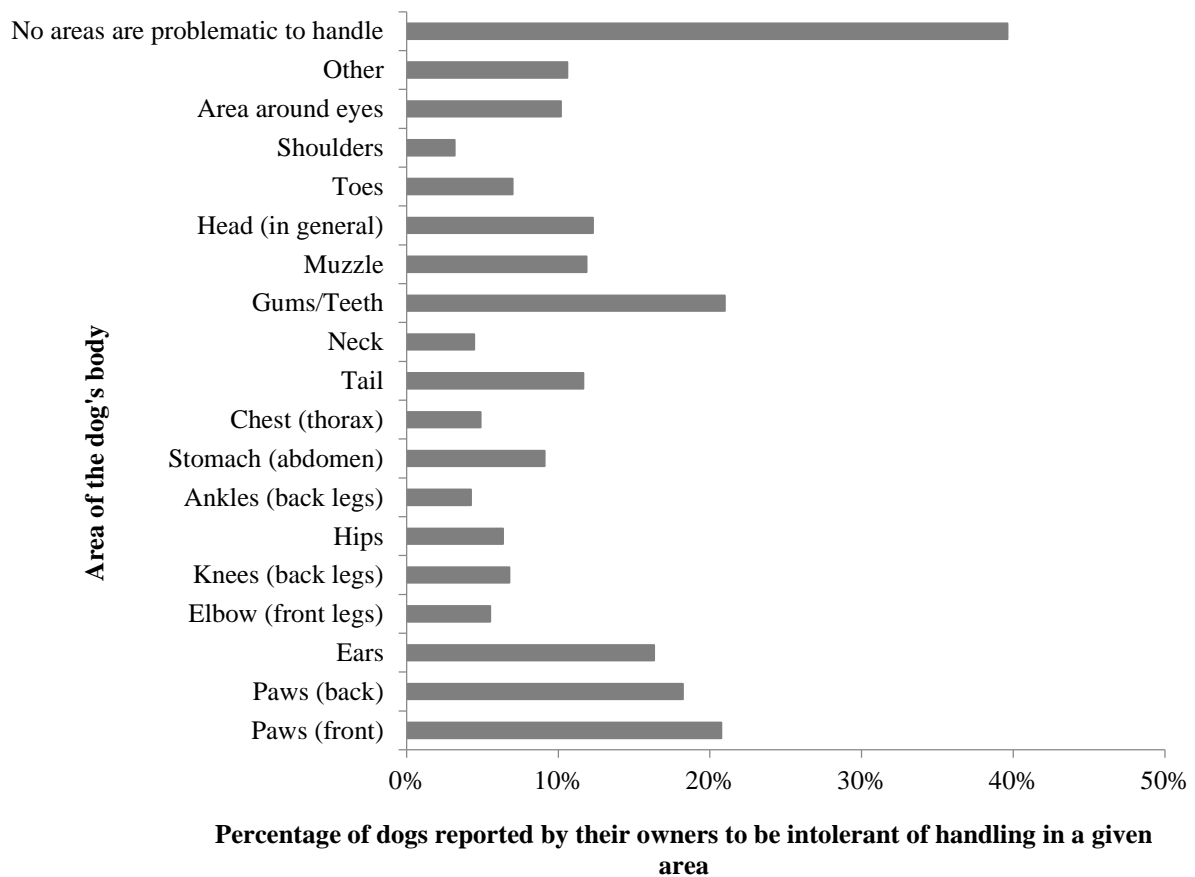


Figure one: Areas of the body that owners indicated that they believed that their dog was intolerant of being handled. The percentage does not add up to 100% as owners could select more than one option.

Most owners (78.3%) reported that they would definitely tell veterinary professionals about their dog's handling intolerances, and this was not significantly associated with owning a dog that currently had handling intolerances ($\chi^2_1 = 0.492$, $p = 0.483$). No owners reported that they would definitely not tell veterinary professionals about their dog's handling intolerances. The majority of owners felt that behaviour-related aspects was of similar importance to the veterinary consultation as the vet having access to their dog's clinical history (see figure 2).

Ninety owners (19.1%) reported that their dog wore a muzzle during at least some veterinary consultations, with approximately 1 in 5 owners (22.9%) reporting that it was sometimes necessary to have more than one veterinary professional to handle their dog during a veterinary examination. Where a muzzle was used, 52% of owners ($n = 47$) reported that it was always them that suggested to the veterinary professional that a muzzle be used, a further 34% reported share decision-making with both parties suggesting muzzle use. The remaining

eleven owners reported that the veterinary professional was always the individual to suggest a muzzle **should be used during handling in the consultation.**

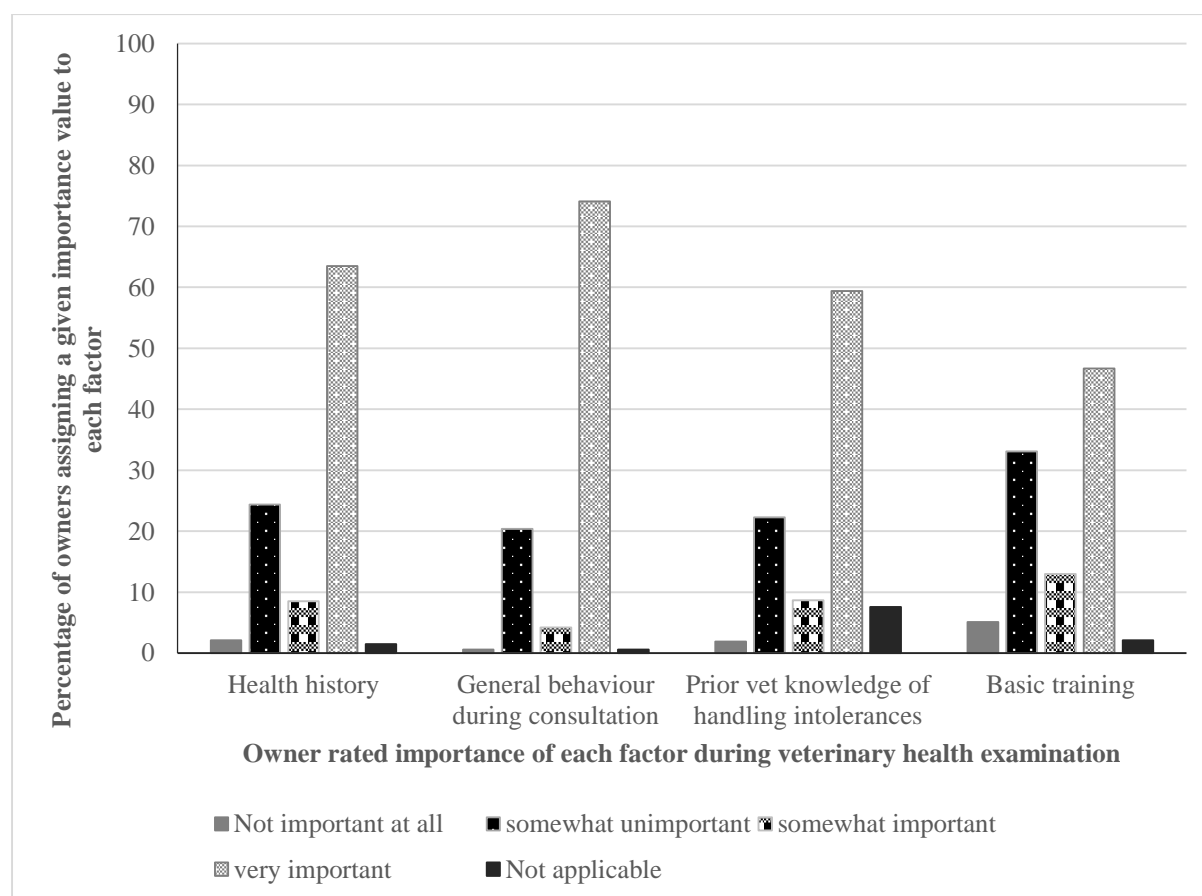


Figure two: Owner-rated importance of factors that are important to consider when taking their dog to a veterinary clinic for a veterinary health examination. Nb. No data was collected on why some owners thought that each of these factors were not applicable so it is possible that the not important at all category underestimates the number of owners that did not place importance on this factor.

6.3. Attitudes regarding risk to veterinary professionals of not disclosing canine handling intolerances

The majority of owners perceived that there was a high risk if veterinary professionals were not informed of dogs handling intolerances/handling preferences prior to common procedures undertaken during a veterinary consultation. The median risk perceived was 5.9 (5 – 6). There was no significant effect of age, gender, qualification, dog owning experience, or ownership of a dog with handling intolerances or from a particular KC grouping.

6.4. Beliefs as to whose responsibility it is to ensure veterinary professionals are aware of handling intolerances

Respondents believed that it was primarily the role of the owner to ensure that veterinary professionals were informed of any handling tolerances that their dog may have. Significantly ($\chi^2_1 = 12.133$, $p < 0.001$) more respondents (90.5%) completely agreed with the statement “It is the responsibility of the dog owner to alert veterinary staff where their dog does not like being touched” than completely agreed with the statement “The veterinary staff should ask before each consult if there are areas a dog (patient) does not like being handled” (only 58.2% of respondents). Furthermore, 72% of respondents completely or somewhat disagreed with the statement “Dog owners need only alert veterinary staff if the dog is likely to bite the veterinary professional when being handled”. However, approximately 1 in 5 respondents (20.7%) completely agreed with this statement.

When asked about acceptability of approaches that a veterinary practice may take to ensuring that the veterinary professionals know about a dog’s handling tolerances before clinically examining the dog, most respondents strongly agreed with all four common approaches suggested. The option with the strongest agreement was for the owner to ensure that the veterinary professional was informed (90.1% of respondents), and the option with the fewest respondents strongly agreeing was for veterinary professionals to verbally inform each other (59.7%). See figure three.

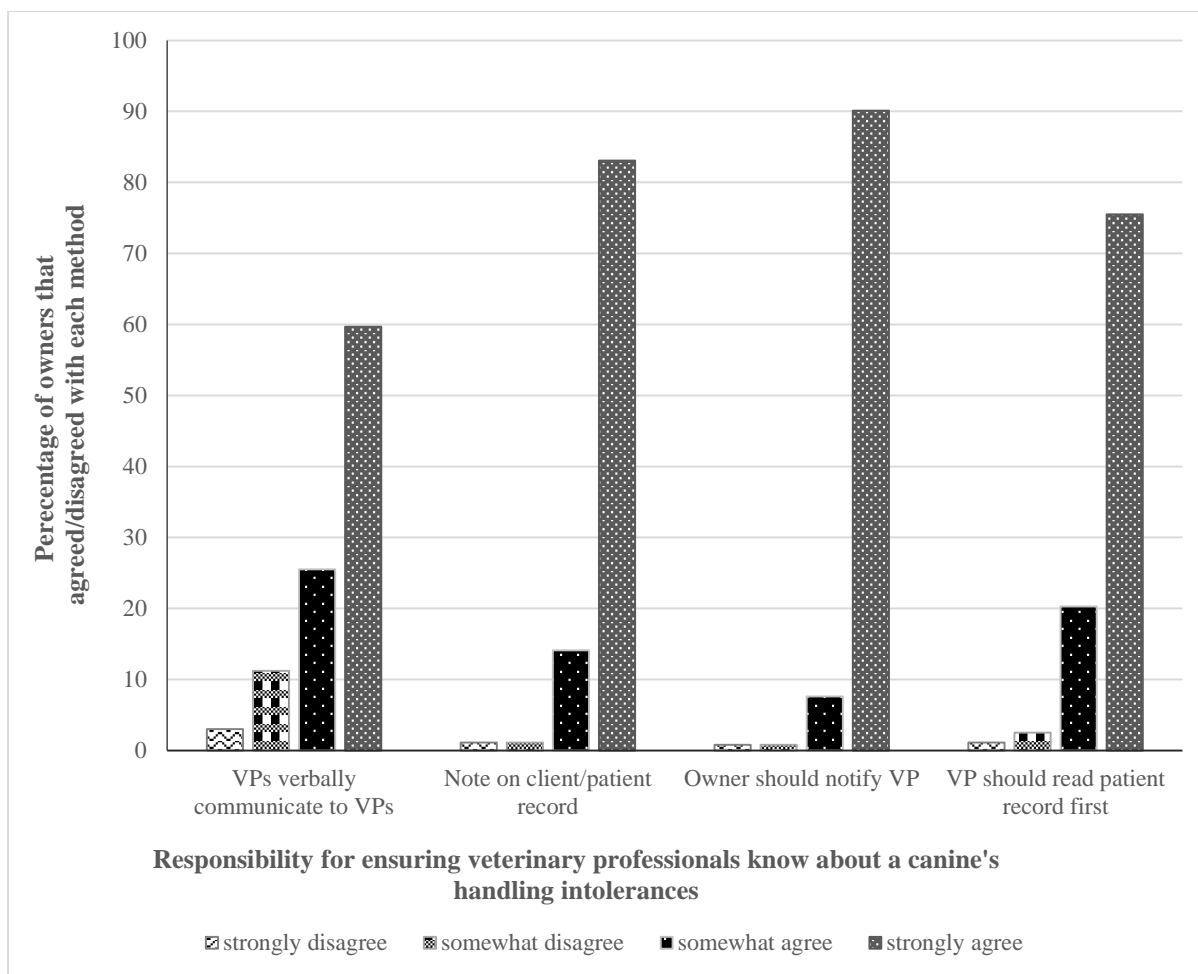


Figure three: **Owners acceptance** of four common approaches to ensuring that a veterinary professional (VP) knows about a canine patient's handling intolerances before clinically examining the dog.

6.5. Prevention and treatment of canine handling intolerances

The majority of respondents (62.9%) believed that veterinary practices could do more to educate owners on how to prevent or minimise the risk of their dog developing handling intolerances, with 82.9% believing that being educated generally when adopting their new dog on reading canine body language would be useful. Seventy one percent of respondents said they would have potentially attended a free puppy class at their local veterinary practice that focused on how to help puppies desensitise to veterinary handling.

When asked who the respondent would approach for help if their dog had handling intolerances while at the veterinary practice, 74.9% and 68% of respondents would either definitely or be somewhat likely to approach the veterinarian or veterinary nurse respectively for assistance. A similar percentage would approach a dog trainer (72.6%) or behaviourist (69.7%) for advice. Breeders, friends and books were less likely to be consulted

(21.3%, 22.8% and 48.8% respectively). Just 5.3% of respondents said that they would ‘definitely not’ or ‘would be somewhat unlikely’ to consult **anyone** about their dog’s handling intolerances.

7. Discussion:

To the authors’ knowledge, this is the first study to examine the owner perspective on factors associated with a dog’s intolerance of being handled by veterinary professionals. Thus, the study provides a valuable contribution to understanding reported prevalence of handling intolerances, as well as improves veterinary professional understanding of client beliefs and reported behaviour in this under-researched but important topic.

7.1. Handling intolerances

Alarming, almost 1 in 5 owners had delayed taking their dog to the **veterinary practice** because of the dog’s behaviour, with over 60% of owners reported handling intolerances to one or more body parts and handling intolerances associated with increased likelihood of delaying visits. This suggests far reaching effects on the welfare of all parties as the dogs often had concurrent aversions to being handled in more than one area of the body. An important consideration is whether these wider handling intolerances could have been mitigated by increased involvement of the veterinary professional at an earlier stage to prevent or reverse issues developing. Westlund (2015) identified positive effects of using treats during desensitisation sessions. Benefits included reduced stress for the canines involved, reduced fear anticipation of veterinary visits and therefore less risk to staff of injury during handling. Factors such as aggression or handling issues can stem from early socialisation experiences or from previous negative experiences and associations with unpleasant stimuli, such as veterinary buildings, or uniforms, and the feeling of fear (Howell, et al., 2015; Csoltova et al (2017) or poor reading of canine body language by veterinary professionals (Ryan, 2019). Thus it is important that the veterinary professional can work collaboratively with owners to produce canines **habituated** to veterinary visits and examinations. It also indicates a need to identify those clients that may be avoiding veterinary care because of handling intolerances and to look at ways the practice can implement measures to reduce the percentage of clients affected. A starting point for this would be a clinical audit to establish baseline attendance issues within the reader’s practice.

It was interesting to note that the most commonly reported handling intolerances in healthy dogs were the teeth/gums area. Whilst we cannot discount the possibility that this is partially due to undiagnosed periodontal disease that made mouth handling uncomfortable/painful, this does suggest a particular need to proactively teach a dog to be comfortable with oral examinations. Periodontal disease is common in canines (Kyllar and Witter,

2005; Wallis et al., 2019)), and clinical signs often develop in young adult dogs (Hoffmann and Gaengler, 1996; Wallis et al., 2019) therefore measures to make regular oral examinations easier to undertake and less aversive to canine patients are recommended (Summers et al, 2019). Veterinary nurses could consider placing increased emphasis on this as part of puppy training and developmental checks in order to allow plenty of oral handling training and positive associative efforts before any risk of periodontal disease complicating efforts to do so.

It was encouraging to note that 78% of respondents said that they would definitely ensure that they informed the veterinary professional if their dog had handling intolerances, but this still meant that 22% were not certain that they would always do so. It is **unclear** why this was the case. **This response** was not associated with not owning a handling intolerant dog, so lack of experience of handling issues at the veterinary practice could not explain the findings. A weakness of the current study is that we did not specifically ask respondents why they would not 'definitely report' handling intolerances, and so we cannot be certain how much of this response is due to other factors like "I might forget, get distracted, etc", rather than a conscious decision not to alert the veterinary professional in that particular circumstance. If it is assumed that at least some clients just 'forgot' then the introduction of a canine 'Question Prompt List (QPL)' could be beneficial that covers behaviour topics (including intolerances). QPLs have been shown to be beneficial in human healthcare consultations as they increased communication in multi-department human hospitals and therefore increased health and safety (Sansoni, et al., 2015). QPLs could also have wider benefits by raising awareness of behaviour and its importance, increasing likelihood of discussions between veterinary professionals and owners (and at an earlier stage), and potentially improving both staff, client and patient welfare.

7.2. Perception of Risk, information provided and responsibilities

A high frequency of reported adult dog bites occur to the hands or arms and often require medical attention (Drobatz and Smith, 2003), with the risk to veterinary staff increased during clinical examination (Guy et al., 2001) so awareness of handling risks during examinations is important. It was encouraging to note that respondents perceived a high risk to the veterinary professional if they undertook veterinary procedures commonly undertaken in a consultation but were not informed about any canine handling intolerances. This perception of risk was not affected by any factors studied, including, crucially, ownership of a dog with handling intolerances. We cannot say whether this risk perception would be altered by other unstudied factors, but it was particularly valuable to note that respondents did not need experience of handling intolerant dogs to appreciate potential risks to veterinary professionals. Furthermore, respondents appeared to rate behaviour-

related factors as important to a successful veterinary consultation as the veterinary professional being provided with a clinical/health history. As the behavioural information provision is heavily under the control of the client volunteering this information, this is encouraging and was reflected also in respondents attitudes to the responsibilities of each party (veterinary professional and client) to ensure that the veterinary professional is given prior warning of handling intolerances. Client responsibility for imparting this information was most strongly agreed with, with the intra-professional communication responsibility the least strongly agreed with. This seemed to be reflected in muzzle use, with half of respondents indicating that they were responsible for their dog being muzzled, which indicated prior warning of potential handling issues and potentially a desire to ensure the welfare of the veterinary professional. However, we cannot discount the potential that people motivated to complete our survey might be a particularly informed or dog-responsible cohort. Compared to topics such as medical conditions, husbandry and cost, behaviour was found to be the least discussed welfare topic (Roshier and McBride, 2013), which seems at odds with our respondents placing similar priority on behaviour aspects as on health history. Nonetheless, these findings are encouraging and it would be interesting to identify practical barriers that might affect what influences information actually imparted in the consultation.

Respondents also indicated that veterinary professionals had a key role in **facilitating** the client **to help** the veterinary professional **by ensuring a lower risk of** exposure to and handling of, **handling-intolerant** dogs. This was by both reducing the risk of intolerances developing, increasing the ability of clients to potentially recognise developing handling intolerances, and in providing assistance if handling tolerances were being displayed. Regarding seeking information on handling intolerances, 74.9% of respondents would approach a veterinarian for advice. Roshier and McBride (2013) report a similar finding, with 70.5% respondents agreeing to seek veterinary advice for behavioural problems. It is encouraging that the majority of respondents would seek assistance from someone if handling issues arose, which opens avenues of exploration into ensuring owners seek information from reliable sources. Veterinary professionals must be aware of basic behavioural knowledge for health and safety and patient care (Hubbard and Hedges, 2017) and to garner client respect and willingness to preferentially seek advice from them. With the rise in use of the internet for self-diagnosis in both human and veterinary medicine alike, the British Veterinary Association (BVA) warned that their recent 'Voice of Veterinary Profession' survey revealed 82% of veterinarians have had clients challenge their diagnosis or recommendations with internet found data (BVA, 2019). By increasing education options within veterinary practices and raising awareness of canine behaviour, clients may feel more open to discussing behaviour on a regular basis which could reduce incidences and severity of handling intolerances.

Respondents believed both that veterinary practices could do more in the area of canine handling intolerances to assist clients, with high interest demonstrated in both puppy classes, and in general education in canine body language at an early stage in dog ownership (before onset of any issues). Similarly, in a canine aggression focused study, Campbell (2016) found owners felt veterinary practices could do more to educate on canine body language. This suggests that veterinary practices have a key role in client education to prevent handling intolerances developing, and this survey demonstrated that there is a potential client willingness to engage with this process. Meints et al (2018) emphasised the importance of education for both children and adults on canine signalment and body language (something that practices could be an integral part of this educational process), but the prevalence of companion animal behaviour literature in UK veterinary practices is currently relatively poor (Feilberg et al., 2019). Using leaflets and client education events to increase owners' comprehension of body language (e.g. through the 'ladder of aggression', Shepherd, 2012) could aid (letter 'e' removed from aide) in understanding of the correct time to give canines space when early warning signs are displayed.

7.3. Conclusion

To conclude, most respondents were very willing to disclose their dog's handling intolerances, felt it was primarily their responsibility to ensure the veterinary professional had prior knowledge and that in not doing so put the veterinary professional at high risk. They also showed a willingness to seek out veterinary professional advice when owning a dog with handling intolerances and would utilise preventative measures offered by the veterinary practice. The veterinary practice keen to support clients in this area is recommended to review its provision of services to identify where provision could be improved or further developed, and to identify clients and dogs that might be at risk of lack of / delayed attendance. Further research should focus on identifying those clients who would not definitely disclose handling intolerances in order to understand the motivations for, and barriers to, lack of guaranteed disclosure of this information.

8. Acknowledgements:

TEMPORARILY SUBMITTED AS TITLE PAGE AS INCLUDED IDENTIFYING MATERIAL. ALL REDACTED INFO IS HIGHLIGHTED YELLOW WITHIN THE MANUSCRIPT.

9. References:

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